DOCUMENT RESUME

ED 405 382 TM 026 249

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TITLE Preliminary Results of a Multidimensional Scaling Approach to Models of Supervision.
PUB DATE 23 Oct 96
NOTE 12p.; Paper presented at the Annual Meeting of the Northeastern Educational Research Association (Ellenville, NY, October 23-25, 1996).
PUB TYPE Reports - Research/Technical (143) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Educational Administration; Elementary Secondary Education; *Graduate Students; Higher Education; Models; *Multidimensional Scaling; Questionnaires; *Research Methodology; Teacher Education; *Teacher Supervision

ABSTRACT

The selection of supervision models from the point of view of practitioners has become overwhelming, especially within the contextual forces of a school or school system. The purpose of this study was to use multidimensional scaling (MDS) to describe four theoretical models of teacher supervision (clinical, artistic, technical, and reflective) empirically on common dimensions. Seven graduate students in a class on supervision and the professor completed a questionnaire asking them to: (1) rate the similarity between pairs of models of supervision; and (2) rate the importance of various adjectives in describing these models. The information from this questionnaire was used to perform an MDS scaling analysis. Two dimensions were found to distinguish among the four models of supervision. An MDS approach may facilitate the development of empirically based descriptions of these various models. However, additional research would be necessary. (Contains 2 tables, 1 figure, and 15 references.) (Author/SLD)

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Preliminary Results of a Multidimensional Scaling Approach to Models of Supervision

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Paper presented at

Northeastern Educational Research Association

Ellenville, NY

October 23, 1996

TM026249

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Abstract

The selection of supervision models from the point of view of practitioners has become overwhelming, especially within the contextual forces of a school or school system. The purpose of this study was to use multidimensional scaling (MDS) to empirically describe four theoretical models of teacher supervision (i.e., clinical, artistic, technical, and reflective models) on common dimensions. Seven graduate students in and the professor of a class on supervision completed a questionnaire asking them to (1) rate the similarity between pairs of models of supervision, and (2) rate the importance of various adjectives in describing these models. The information from this questionnaire was used to perform a multidimensional scaling (MDS) analysis. Two dimensions were found to distinguish among the four models of supervision. An MDS approach may facilitate the development of empirically based descriptions of these various models. However, additional research would be necessary.

Preliminary Results of a Multidimensional Scaling Approach to Models of Supervision

The various models of supervision (i.e., clinical, artistic, technical, and reflective models) represent approaches to articulating the nature of the relationship between supervisors and teachers. These models have emerged as popular approaches to supervision for teachers (Pajak, 1993). The theoretical foundations of these models are varied. It is the contention of this paper that these models can be distinguished on an empirical basis along two dimensions. Preliminary results suggested that the models can be distinguished along at least one dimension of the type of relationship between teacher and supervisor. One other dimension was apparent from the data. However, it was not clear what to label this second dimension. As it will be presented below, this study suggests that the models of supervision share common threads. However, further work is necessary to clarify these common threads.

Four approaches, termed models, to supervision have been presented (i.e., clinical, artistic, technical, and reflective) (see Pajak, 1993). These models reflect varying approaches to supervision. The following is a description of each model.

Clinical Models

The clinical models involved teachers and supervisors working cooperatively to improve classroom practice. The clinical models represent the work of Goldhammer (1969), Mosher and Purpel (1972) and Cogan (1973). Through a series of conferences and observations, the supervisor builds on the teacher's framework gradually, so that their professional autonomy is developed. The supervisor must not only have experience in the process of teaching, but also be a content specialist. The underlying approach in clinical models is for supervisors to assist teachers perfect individual styles by focusing on existing strengths and not attending to deficits and shortcomings. The approach is a cooperative approach where the supervisor discusses teaching behaviors

with the teacher in a logical, rational method to select behaviors that will affect students most positively.

Artistic Models

Artistic models reflect the work of Blumberg (1974) and Eisner (1982). Even though Blumberg and Eisner differ in their approaches, both models attend to the qualities of teaching in a holistic sense. Supervision is not considered the appropriate term in these models. Rather, the "supervisor" develops a consultative or collegial relationship with teachers. This approach relies on qualitative approaches of data collection by the supervisor, in order to best represent the complexities of the teaching context.

Technical Models

The technical models of supervision, in comparison to artistic models, show a strong contrast to the artistic models presented above. The technical models focus on teaching behaviors. These models have been developed by Hunter (1986), Acheson and Gall (1980), and Joyce and Showers (1988). The focus of these models is on the conformity of teachers to behaviors that have been found to be successful in the classroom. The role of the supervisor is to measure these behaviors, judge them, and provide opportunities for learning them.

Reflective Models

The reflective models, in contrast to the technical models, encourage teachers to go beyond the specific teaching behaviors, and develop into wise conductors of learning in the classroom. These models have been supported by Glickman (1981), Costa and Garmston (1985), and Zeichner and Liston (1987). These models share the approach that the teacher needs to develop a holistic approach to the development of skills with an emphasis on the teacher's cognitive growth and introspective qualities.

In light of these models, and the complexity of their scope, a supervisor may find it difficult to select a model that best accommodates the requirements of the school

system, the supervisor's personal philosophical approach, and the teacher's perspective. The importance of considering the local organizational context in efforts of change has been suggested (Darling-Hammond, Wise & Pease, 1983). Furthermore, the complexity of selecting a model of supervision increases as the organizational milieu of the school evolves. Therefore, the skills of supervisors in communicating and understanding general themes and directions are quite important (Weick, 1982).

The articulation of these themes in terms of teacher supervision and evaluation have been lacking (Darling-Hammond, Wise & Pease, 1983). There have been reports that discrepancies exist between the perceptions of supervisors and teachers. Reports indicated that teachers were unsure of the evaluation criteria, rarely observed and received little feedback. However, supervisors indicated the opposite.

In light of these discrepancies in perceptions, challenges in communication and the complexities of the various supervision models, efforts to understand the characteristics of these models in a parsimonious manner would provide assistance to supervisors in understanding and selecting a model for their context. Thus, in this descriptive study, an initial effort was undertaken to characterize the relationships among the various models that were presented above.

In this study seven graduate students in a class on supervision and the professor of this class were asked to complete a questionnaire asking them to (1) rate the similarity between pairs of models of supervision, and (2) assess the importance of various dimensions used by each rater. The information from this questionnaire was used to perform a multidimensional scaling (MDS) analysis. MDS is an analytical technique that allows the researcher to find structure in data that represents people's judgments. The power of this technique comes from representing these judgments in multi-dimensional space from one or relatively small number of judges. The difficulty of analyzing information from a small number of people is compensated by asking each judge to make comparisons on a large number of items.

Due to the limited experience of seven of the subjects in the theoretical nature of the models, the questionnaire used presented the four models of supervision in six items. One question was asked about each pair for a total of six items. These items were comparisons of the name of each general type of model with the other. Increased experience with the models would have resulted in using more detailed descriptors of each model, permitting a larger number of items. Such a small number of items limits the solutions obtained by MDS. Therefore, the analysis should be considered tentative.

In order to perform MDS analysis with this information, the mean of the ratings of each subject across each item was calculated producing a lower diagonal similarity matrix that was submitted for analysis. The MDS analysis was performed using the ALSCAL algorithm (Takane, Young, & de Leeuw, 1977) in SPSS. Due to the few items used, the individual differences feature of this analysis was not utilized, rather an overall solution was obtained. The lower diagonal matrix submitted to the analytical procedure is presented in Table 1.

Table 1

The Matrix of the Average Ratings of the Models

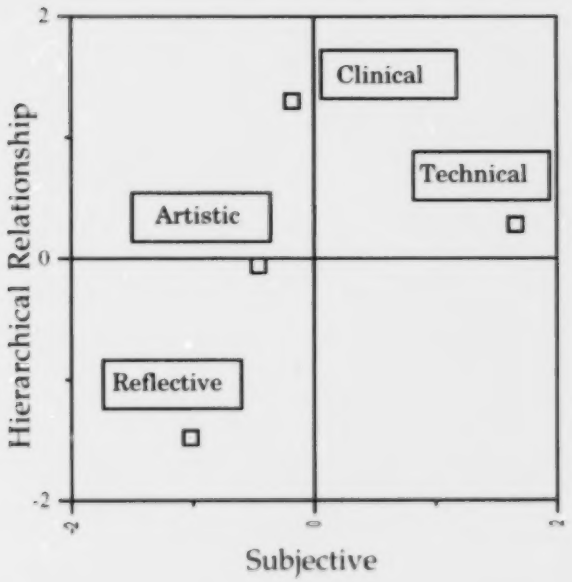
Submitted to the ALSCAL Analysis

Model	Clinical	Artistic	Technical	Reflective
Clinical				
Artistic	2.9			
Technical	2.5	3.5		
Reflective	1.5	4.1	2.0	

The solution obtained can be seen in Figure 1 below. The observed fit in this two-dimensional solution was adequate (stress = 0.128 and $R^2 = 0.92$). More dimensions were not possible, as a result of the small number of stimuli being scaled.

Figure 1

The Two-Dimensional Solution Obtained by the ALSCAL Analysis



As it can be seen in Figure 1, two dimensions distinguish the four models of supervision. In order to label the two dimensions, the information from the second part of questionnaire was utilized. As a means of identifying the dimensions of the solution, the average ratings of the degree of importance of each adjectives was regressed against the coordinates of the solution. The small sample sizes should make interpretations tentative. However, the results suggested some interesting issues that would be worth investigating. The results of this regression analysis are presented in Table 2.

Table 2

Regression Analysis of the Average Ratings of Importance of Each Adjective and the Coordinates of the Two-Dimensional Solution

					Part Corr.	
Descriptor	R	R^2	F	Sig.	Dim. 1	Dim. 2
Evaluative	0.18	0.03	0.09	NS	-0.01	-0.10
Holistic	0.15	0.02	0.06	NS	0.15	0.15
Data Intensive	0.61	0.37	1.50	NS	-0.58	-0.43
Objective	0.28	0.08	0.21	NS	-0.23	-0.12
Teacher Focused	0.72	0.52	2.69	NS	0.62	0.34
Subjective	0.81	0.66	4.86	NS	-0.16	-0.63
Process-Oriented	0.65	0.43	1.87	NS	-0.62	-0.65
Accountability	0.43	0.19	0.57	NS	-0.42	-0.34
Student Performance Oriented	0.46	0.21	0.68	NS	0.32	0.10
Diagnostic	0.74	0.55	3.09	NS	0.74	0.73
Qualitative	0.46	0.21	0.67	NS	0.40	0.23
Hierarchical Relationship	0.91	0.83	12.45	<.05	0.19	-0.68
Quantitative	0.56	0.32	1.14	NS	-0.40	-0.13
Cooperative Relationship	0.77	0.59	3.54	NS	0.35	0.66

Notes.

NS represents not significant.

Part Corr. represents the part correlation of each coordinate of the two-dimensional solution.

As can be seen in Table 2, the hierarchical relationship descriptor was the only adjective that was found to show a significant relationship with the solution. When the

part correlations were examined, the part correlation with the second dimension was found to be significant, where as the part correlation with the first dimension was not significant. Thus, the descriptor of hierarchical relationship seems to be one of the dimensions of the solution. Since it was found to be negatively correlated, the higher the values of the coordinate for the second dimension, the less hierarchical the relationship would be. Thus, the clinical models were perceived as being less hierarchical in nature between supervisor and teacher. However, the reflective models were perceived as more hierarchical.

This was consistent with the general descriptions of the models. Clinical models were described as supervisor and teacher working cooperatively. These tentative findings seem to confirm this type of relationship. Furthermore, in the reflective models where the progression of a teacher's cognitive development may be closely monitored by the supervisor, a hierarchical relationship may be formed. However, more research may clarify this relationship.

Since none of the other descriptors showed a significant relationship, the one with the highest R^2 was used to label the second, horizontal dimension. This descriptor was subjective. The relationship between this descriptor and the first dimension was slightly negatively related as shown y the part correlation between the coordinate of the first dimension and the rating for this descriptor.

In the description of the models above, the technical models were considered to be the more measurement-driven, quantitative models. The focus of these models was to have teacher's demonstrate certain behaviors that were considered good practice. An elaborate measuring process existed for the clinical models. Thus, it may be that technical models were perceived as less subjective.

The more subjective models, again from a theoretical perspective, were the reflective and artistic models. The representation in Figure 1 based on the MDS

analysis seems to confirm this. These models were described as being more qualitative where the perceptions of the supervisor and teacher were considered important.

As concluding comments, it was the intention of this paper to begin to describe these four supervision models using a MDS approach. Although tentative, these preliminary findings suggest that using an MDS approach may provide a means to describe these models along parsimonious dimensions. Thus, with further study supervisors may have a means of articulating the models they use more effectively.

There are a number of things that can be done at this point. Certainly, foremost, efforts should be made to replicate this study using a larger number of subjects and/or stimuli. The generalizability of these findings rest on the ability to select items that reflect each model.

References

Acheson, K. A. & Gall, M. D. (1980) Techniques in the clinical supervision of teachers. White Plains, NY: Longman.

Blumberg, A. (1974). Supervisors & teachers: A private cold war. Ann Arbor, MI: University of Michigan, Institute for Social Research.

Cogan, M. L. (1973). Clinical supervision. Boston: Houghton-Mifflin.

Costa, A. L. & Garmston, R. (1985). Supervision for intelligent teaching. Educational Leadership, 42(5), 70-80.

Darling-Hammond, L., Wise, A. E. & Pease, S. R. (1983). Teacher evaluation in the organizational context: A review of the literature. Review of Educational Research, 53(3) 285-328.

Eisner, E. W. (1982). An artistic approach to supervision. In T. J. Sergiovanni (Ed.), Supervision of teaching: 1982 ASCD Yearbook. Alexandria, VA: Association for Supervision and Curriculum Development.

Glickman, C. D. (1985). Supervision of instruction: A developmental approach. Boston: Allyn and Bacon.

Goldhammer, R. (1969). Clinical supervision: Special methods for the supervision of teachers. New York: Holt, Rinehart, & Winston.

Hunter, M. (1984). Knowing, teaching, and supervising. In P.L. Hosford (Ed.), Using what we know about teaching. Alexandria, VA: Association for Supervision and Curriculum Development.

Joyce, B. & Showers, B. (1988). Student achievement through staff development. New York: Longman.

Mosher, R. L. & Purpel, D. E. (1972). Supervision: The reluctant profession. Boston: Houghton-Mifflin.

Pajak, E. (1993). Approaches to clinical supervision: Alternatives for improving instruction. Norwood, MA: Christopher-Gordon Publishers, Inc.

Takane, Y., Young, F. W. & de Leeuw, J. (1977). Nonmetric individual differences multidimensional scaling: An alternating least squares method with optimal scaling features. Psychometrika, 42, 7-67.

Weick, K. E. (1982). Administering education in loosely coupled schools. Phi Delta Kappan, 63(10), 673-676.

Zeichner, K. M. & Liston, D. P. (1987). Teaching student teachers to reflect. Harvard Educational Review, 57(1), 23-48.